

State of California
The Resources Agency
DEPARTMENT OF FISH AND GAME

**CENTRAL VALLEY SALMON AND STEELHEAD
HARVEST MONITORING PROJECT**

1999 ANGLER SURVEY ^{1/}

Prepared by

Kyle Murphy
Associate Biologist (Marine/Fisheries)

and

Larry Hanson, Mike Harris, and Tom Schroyer
Biologists (Marine/Fisheries)

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SUMMARY

In October 1992, the Central Valley Project Improvement Act (CVPIA) was signed into law. One objective of the CVPIA is to restore the abundance of natural fish stocks in Central Valley rivers and streams. To achieve this objective, the CVPIA requires the development of restoration actions that ensure sustainable, long-term populations of native anadromous fish stocks. Section 3406(b)(16) of the CVPIA specifies the development of a monitoring and assessment program to evaluate the effectiveness of implemented restoration actions. The Comprehensive Assessment and Monitoring Program (CAMP) was established for this purpose. The CAMP program recommends monitoring of both adult and juvenile fish populations. It was recommended that adult monitoring include spawner returns (escapement) as well as in-river recreational, ocean recreational and commercial harvest estimates.

To help enumerate the number of adult chinook salmon and steelhead resulting from natural production in Central Valley rivers and streams, the Department of Fish and Game (Department) has begun a long-term harvest monitoring project to determine annual estimates of the total in-river harvest. In addition, this project also provides limited harvest data of other anadromous and resident fish species.

In 1998, the Department began the Central Valley Salmon and Steelhead Harvest Monitoring Project. In 1999, the second year of the project, the Department conducted an angler survey on the Sacramento River and six major tributaries between January 1st and December 31st, 1999. A total of 55,471 anglers was surveyed who spent an estimated 3,847,078 angler-hours sport fishing. Chinook salmon was the target of most anglers surveyed, anglers expended 1,526,978 angler-hours in pursuit of this species. Striped bass was the second most sought species with 1,256,990 angler-hours expended. Anglers also spent 108,932 angler-hours in pursuit of steelhead trout.

Anglers targeting chinook salmon harvested an estimated 93,150 salmon. Angler s targeting striped bass harvested an estimated 71,830 striped bass. While anglers targeting steelhead trout reported keeping few fish, this survey estimates that 886 steelhead were harvested.

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INTRODUCTION

Native anadromous fish stocks in many Central Valley rivers and streams have declined to such a critical level that many stocks are currently listed or are candidates for listing under the Endangered Species Act. In an effort to restore the abundance of natural stocks, the Central Valley Project Improvement Act (CVPIA) was enacted in October, 1992. This Act calls for the development of restoration actions that ensure long-term sustainable populations of native anadromous fish stocks. To evaluate the effectiveness of these restoration actions, the Comprehensive Assessment and Monitoring Program (CAMP) was developed under Section 3406(b)(16) of the Act.

To assist in the CAMP monitoring program, the California Department of Fish and Game (CDFG) developed the Central Valley Salmon and Steelhead Harvest Monitoring Project. The CDFG has used angler surveys in the past to monitor the harvest of anadromous fish within Central Valley rivers and streams. Unfortunately, no comprehensive or long-term (more than 5 years) surveys have been made on a consistent basis. This project is designed as long-term monitoring program to determine annual estimates of total in-river harvest of sport fish from the Sacramento River and major tributaries. Also, the data will complement and enhance other ongoing CDFG harvest monitoring programs such as Department's adult striped bass, adult sturgeon and ocean salmon harvest. This project originated in April 1998 and is into its second year.

STUDY AREA

The study area consists of 554 miles of the Sacramento River and major tributaries which were divided into 18 sampling sections. The rivers comprising the study area are: Sacramento River from Carquinez Bridge upstream to the Anderson-Cottonwood Irrigation District (ACID) Dam in Redding (eight sections); Feather River from its confluence with the Sacramento River at Verona upstream to the Oroville Project Fish Barrier Dam in Oroville (three sections); Yuba River from the confluence with the Feather River near Marysville to one mile upstream of the Hwy. 20 bridge crossing (two sections); American River from its confluence with the Sacramento River at Discovery Park upstream to Nimbus Dam (three sections); San Joaquin River from its confluence with the Sacramento River upstream to Mossdale Crossing near Tracy (one section); South Fork Mokelumne River from its confluence with the San Joaquin River upstream to Interstate 5 Bridge crossing including the North Fork Mokelumne River (two sections); Stanislaus River from McHenry Avenue bridge near Meyers upstream to Goodwin Dam (one section) (Figure 1).

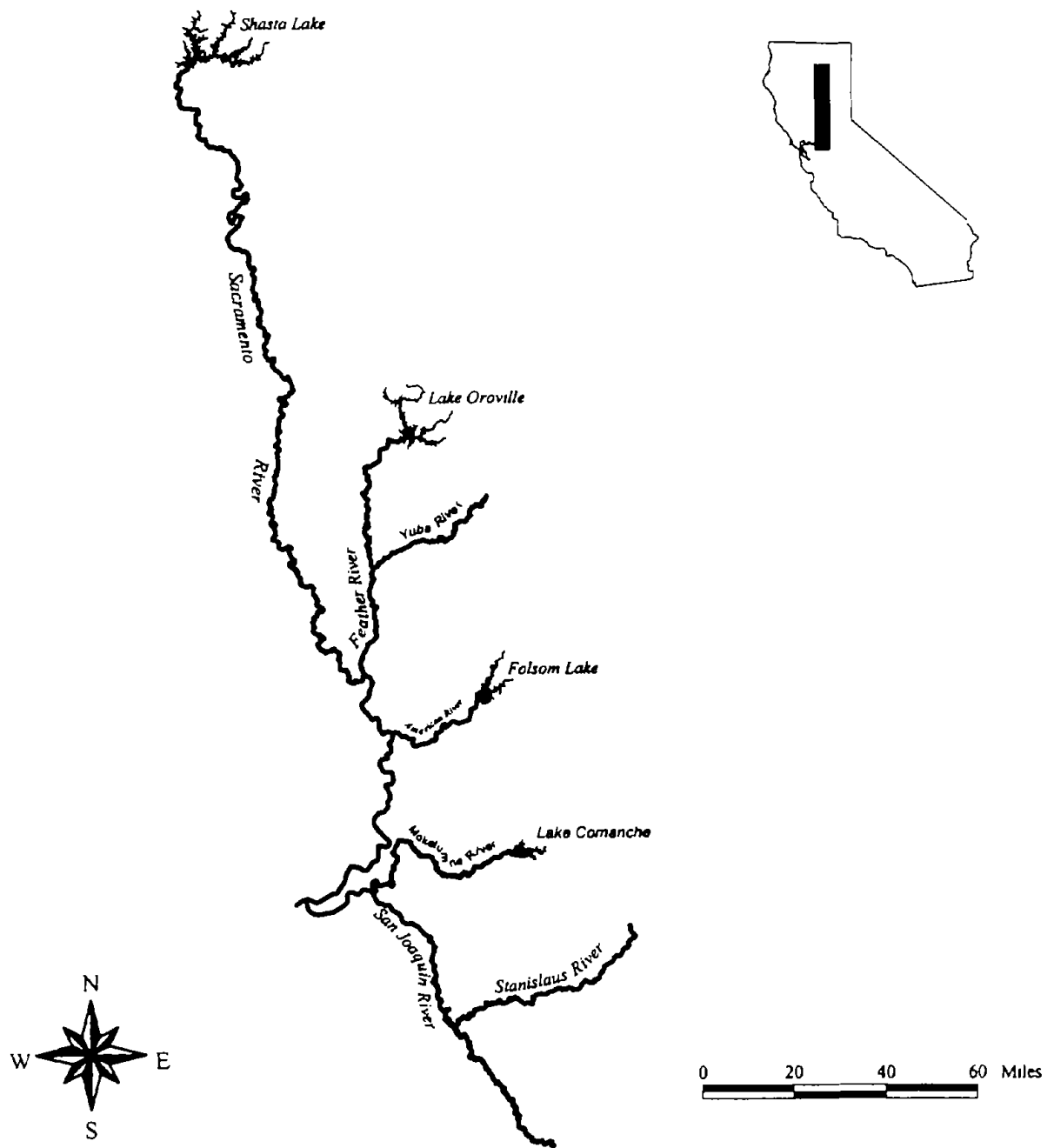


Figure 1 Angler Survey Rivers

PROCEDURES

Statistical Design

A stratified random sample design, based on the design used by the Sacramento River System Sport Fish Inventory (Wixom, 1995), was used to estimate the in-river harvest during the daytime sport fishery. While a night fishery exists in the Central Valley rivers, no effort was made by this survey to evaluate the harvest by nighttime sport anglers.

A total of eighteen sections was sampled. Sixteen sample sections ranged in length from 4 to 58 river miles. Two sample sections, which represented unique fisheries, were approximately one river mile in length. Sampling schedules and data summaries were compiled on a monthly basis. Months were arbitrarily chosen as sample periods.

All sample sections were surveyed eight randomly selected times each month - four weekdays and four weekend days. Weekdays and weekend days were placed in separate strata because more angling effort is commonly associated with weekend days.

All sample sections were surveyed by kayaks or power boats with the exception of the Stanislaus River. Kayaks were used in shallow upstream reaches while power boats were used in rivers where tides, wind, and waves demanded the use of more seaworthy boats. The Stanislaus River was sampled by visiting designated access points between McHenry Avenue bridge and Goodwin Dam. If vehicle(s) are present at an access point, then the creel clerk tries to locate the angler(s) by hiking along the stream bank until found. Sampling below McHenry Avenue bridge was not feasible because of the limited public access and difficulty in locating anglers.

For each section surveyed, a random start time and launch location was chosen. Start times were classified as either early or late. An early start time was scheduled to begin ½ hour after sunrise, while a late start time would vary depending on length of section and time of year. Typically, a late start time was scheduled so that the survey would end at or near sunset. Launch locations would either be at the upstream or downstream end of the sections to be surveyed. In those sections where kayaks were used, the launch location was always at the upstream end of the section.

All data collected were linked by river mile. Actual river miles were used for the Sacramento River sections. Each tributary was given a unique number series to identify it from other rivers in the database. The number series assigned to each tributary were as follows: Feather River, 400 series; American River, 500 series; Yuba River, 600 series; San Joaquin River, 700 series; South Fork Mokelumne River, 800 series; North Fork Mokelumne River, 900 series; Stanislaus River, 1000 series. River mile designations were marked in ascending order from downstream to upstream.

Data Collection

Three field data sets were required to calculate use and catch: hourly counts, angler counts, and angler interviews. Hourly counts determined the portion of the whole represented by the sample day angler count. For this survey, hourly counts collected by Wixom (1995) were used. Where hourly count data was unavailable, data sets were developed by using the hourly counts of representative rivers.

On each sampling day, the procedure was to make a high speed pass to the end of the section. This first pass was called the angler count. Data collected during the angler count included: time of observation, location by river mile, number of boats, number of boat anglers, and the number of shore anglers. At the end of the angler count, a second pass was made traveling back through the section to conduct angler interviews. Prior to beginning the interviews, the survey crew determined the feasibility of interviewing all anglers counted during the angler count. If it was determined that this was not feasible, then they randomly chose a N^{th} angler to be interviewed. Once a N^{th} angler interval was chosen, that interval was maintained through the entire section for that survey date. Data collected during each interview included: location by river mile, fishing method, number of hours fished, number of anglers in group, target species, zip code, whether the trip was completed, and the number of fish kept and released by species.

Nine sport fish species found in the Central Valley rivers were considered "Target Species." Those species were: chinook salmon, steelhead, rainbow trout, striped bass, sturgeon (all species), American shad, catfish (all species), sunfish (all species), and black bass (all species) (Table 1). If anglers did not indicate they were fishing for one of the target species, the code "ANY" was used.

The number of fish kept and released was recorded separately for each of the nine target species. All other fish species caught were recorded separately by species in a column labeled "Other" (Table 2).

A length measurement was used to differentiate between steelhead and rainbow trout. All rainbow trout 18 inches or greater were considered to be steelhead. Rainbow trout less than 18 inches were recorded as rainbow trout (McEwan, 1998)¹.

Additional data were collected from five of the nine target species when kept by anglers. The five species were: chinook salmon, steelhead, rainbow trout, striped bass and sturgeon. Each fish was measured to the nearest .5 centimeter fork length and inspected for any marks or tags. A total length measurement was taken on sturgeon. All chinook salmon and steelhead caught were inspected for the presence of an adipose fin. A salmon or steelhead missing an adipose fin indicated the fish was of hatchery origin and likely contained a coded-wire tag (CWT) in its head. The head was removed from adipose fin clipped fish and sent to the CDFG Ocean Salmon Project laboratory in Healdsburg for later analysis.

¹D. McEwan, 1998, Senior Biologist, California Department of Fish and Game.

Table 1. Species symbols, common and scientific names of target species observed in the 1999 Angler Survey, January 1 through December 31, 1999.

Family	Target Species	Species Symbol	Common Name	Scientific Name
Salmonidae:	Chinook Salmon	KS	King Salmon	<i>Oncorhynchus tshawytscha</i>
	Steelhead	SH	Steelhead Trout	<i>Oncorhynchus mykiss</i>
	Rainbow Trout	RT	Rainbow Trout	<i>Oncorhynchus mykiss</i>
Moronidae:	Striped Bass	SB	Striped Bass	<i>Morone saxatilis</i>
Acipenseridae:	Sturgeon	ST	White Sturgeon	<i>Acipenser transmontanus</i>
			Green Sturgeon	<i>Acipenser medirostris</i>
Clupeidae:	American Shad	AS	American Shad	<i>Alosa sapidissima</i>
Ictaluridae:	Catfish	CF	Channel Catfish	<i>Ictalurus punctatus</i>
			White Catfish	<i>Ameiurus catus</i>
			Brown Bullhead	<i>Ameiurus nebulosus</i>
			Black Bullhead	<i>Ameiurus melas</i>
Centrarchidae:	Sunfish	SF	Black Crappie	<i>Pomoxis nigromaculatus</i>
	Black Bass	BB	Largemouth	<i>Micropterus salmoides</i>
			Smallmouth	<i>Micropterus dolomieu</i>
			Spotted Bass	<i>Micropterus punctulatus</i>
Other:	Any Species	ANY	The "ANY" designations was used for anglers who indicated they were not fishing for a specific species.	

Table 2. Non-target species symbols, common and scientific names of species observed in the 1999 Angler Survey, January 1 through December 31, 1999.

Family	Common Name	Species Symbol	Scientific Name
Cyprinidae:	Common Carp	CP	<i>Cyprinus carpio</i>
	Hardhead	HH	<i>Mylopharodon conocephalus</i>
	Splittail	SPT	<i>Pogonichthys macrolepidotus</i>
	Squawfish	SQ	<i>Ptychocheilus grandis</i>
Catostomidae:	Sacramento Sucker	SKR	<i>Catostomus occidentalis</i>
Pleuronectidae:	Starry Flounder	STR	<i>Platichthys stellatus</i>
Sciaenidae:	White Croaker (Kingfish)	KF	<i>Genyonemus lineatus</i>

Estimate Calculations

Sample day estimates for angler-hours were created by dividing the observed angler count by the average hourly count within the respective hour interval. The mean of the sample days within a stratum was expanded by the number of days available in the month to obtain the total for the stratum. For each month and section, weekend and weekday strata were combined for total estimated angler-hours as follows:

$$\text{TOTALAH}_i = ((\text{ALLWD}_i * \text{WDAVG}_i) + (\text{ALLWE}_i * \text{WEAVG}_i))$$

TOTALAH_i = total angler-hours (the subscript i denotes the stratum containing a particular combination of section and month).

ALLWD_i and ALLWE_i = number of weekdays and weekend days, respectively available in the month.

WDAVG_i and WEAVG_i = mean of expanded sample-day angler-hours for weekdays and weekend days, respectively.

Hourly count data were not available for all rivers surveyed. For example, Feather River hourly counts were used with Yuba River angler count data; Sacramento River counts were used with San Joaquin River and Mokelumne River angler count data; and American River hourly counts were used with Stanislaus River angler count data.

Angler hour estimates were scaled down to each species by multiplying the total angler-hours by the observed percent distribution of effort for each target species:

$$\text{TOTALAHSP}_{ij} = \text{TOTALAH}_i * \text{FISHHRS}_{ij}$$

TOTALAHSP_{ij} = estimated angler-hours (subscript i denotes the stratum containing a particular combination of section and month, j denotes target species)

TOTALAH_i = total angler-hours (the subscript i denotes the stratum containing a particular combination of section and month).

FISHHRS_{ij} = the ratio of the sample total angler-hours for species "j" divided by the sample total angler-hours for all species in section and month "i".

CPUE was calculated from the sample total number of fish caught divided by the sample total hours fished for each target species within the selected month and section "i". It was assumed that the catch rate was the same for all days of the week. Separate values were calculated for harvested and released fish. Therefore:

$$CPUE_{ij} = SUMFISH_{ij}/SUMHRS_{ij}$$

$CPUE_{ij}$ = catch-per-unit-effort for harvested or released target species.

$SUMFISH_{ij}$ = total observed number of fish harvested or released.

$SUMHRS_{ij}$ = total observed angler-hours expended to catch and release a target species.

Catch is the product of the estimated angler-hours and CPUE for target species, section, and month selected, where:

$$CATCH_{ij} = TOTALAHSP_{ij} * CPUE_{ij}$$

$CATCH_{ij}$ = Estimated catch for a harvested or released target species.

$TOTALAHSP_{ij}$ = estimated angler-hours (subscript i denotes the stratum containing a particular combination of section and month, j denotes target species)

$CPUE_{ij}$ = catch-per-unit-effort for harvested or released target species.

FINDINGS

Angler surveys were conducted on the Sacramento, Feather, Yuba, American, San Joaquin, Mokelumne, and Stanislaus rivers between January 1 and December 31, 1999. This is the second year of a multi-year project designed to estimate angler effort and harvest. A total of 55,471 anglers was interviewed, and these data form the basis for the angling effort and harvest estimates.

Sport anglers spent 3,847,078 angler-hours fishing in the Central Valley rivers surveyed. Chinook salmon was the species targeted by most them. Anglers began fishing for chinook salmon with the season opener, July 15th, on most of the surveyed rivers. Steady angling continued through the season closing on January 14th, with the peak in angling effort occurring in September or October. In 1999, anglers spent a total of 1,526,978 angler-hours fishing for chinook salmon (Table 3). This was a 13% increase in angling effort from the 1998 survey. Striped bass was the second most targeted species. Anglers began targeting striped bass in the Lower Sacramento near Rio Vista in January, with effort typically peaking in April or May. In 1999, a total of 1,256,990 angler-hours was spent targeting striped bass (Table 3). This is a 9% increase in angling effort from the 1998 survey.

The most common fish in the creel was again chinook salmon followed by striped bass. This survey estimated that anglers harvested 93,150 salmon and 71,830 striped bass (Table 3).

This represents a 11% increase in salmon harvest and a 14% decrease in the striped bass harvest when compared to the 1998 survey totals.

The 1999 angling effort for steelhead totaled 108,932 angler-hours. Steelhead anglers focused their efforts on the American and Feather Rivers. The peak in angling effort was in January on the American River, but occurred much earlier, October, on the Feather River. While the majority of steelhead anglers reported releasing most of the fish they caught, this survey does estimate that 886 steelhead were harvested in 1999 (Table 3).

Table 3. Summary of angler effort and catch for selected species on the Sacramento, Feather, American, Yuba, San Joaquin, Mokelumne and Stanislaus rivers for the period January 1 through December 31, 1999

River Reach	Carquinez Br to Sacramento (1,2)	Sacramento to Colusa (3,4)	Colusa to Red Bluff (5,6)	Red Bluff to Redding (7,8)	American River (9-10,1)	Feather River (11-12,1)	Yuba River (13,14)	San Joaquin River (15)	Mokelumne River (16,17)	Stanislaus River (18)	TOTALS
Section #:	(1,2)	(3,4)	(5,6)	(7,8)	(9-10,1)	(11-12,1)	(13,14)	(15)	(16,17)	(18)	
Total Estimated Angler Hours	949,857	543,391	429,508	325,034	491,830	574,523	54,304	336,643	126,456	15,532	3,847,078
Number Days Sampled	151	177	176	186	271	277	175	81	190	40	1,724
Chinook Salmon											
Angler-Hours	202,462	187,182	259,968	176,708	295,201	386,487	7,431	0	11,495	44	1,526,978
Estimated Kept	10,715	5,106	15,615	13,802	21,053	25,684	774	0	401	0	93,150
Estimated Released	168	27	643	250	29,537	16,051	517	0	106	44	47,343
Steelhead											
Angler-Hours	145	549	912	1,048	57,374	44,806	3,957	0	0	141	108,932
Estimated Kept	16	62	0	25	567	181	35	0	0	0	886
Estimated Released	0	12	123	168	6,704	2,976	528	0	0	56	10,567
Rainbow Trout											
Angler-Hours	0	0	937	140,942	9,605	3,868	34,099	0	0	3,853	193,304
Estimated Kept	0	0	156	1,033	368	21	1,057	0	0	0	2,635
Estimated Released	0	0	99	85,923	2,513	872	12,863	0	0	4,072	106,342
Striped Bass											
Angler-Hours	474,739	255,155	118,348	0	49,098	105,926	424	169,143	79,171	4,986	1,256,990
Estimated Kept	23,686	17,104	11,167	0	1,809	2,590	0	10,485	4,945	44	71,830
Estimated Released	103,370	72,039	26,947	0	9,010	14,970	0	51,287	12,469	422	290,514
Sturgeon (all species)											
Angler-Hours	182,271	53,514	17,255	0	235	2,376	0	27,119	14	0	282,784
Estimated Kept	1,551	152	57	0	0	0	0	232	0	0	1,992
Estimated Released	5,306	28	207	0	0	0	0	615	0	0	6,156
American Shad											
Angler-Hours	19,974	5,480	27,685	0	38,691	7,358	6,979	0	0	1,267	107,434
Estimated Kept	18,011	401	1,116	0	5,087	2,426	200	0	0	71	27,312
Estimated Released	1,409	4,503	15,837	0	19,855	4,323	4,243	0	0	321	50,491
Catfish (all species)											
Angler-Hours	14,599	17,139	668	0	1,552	2,414	50	76,657	14,157	168	127,404
Estimated Kept	3,135	2,397	0	0	0	495	0	40,880	6,222	0	53,129
Estimated Released	1,323	2,758	32	0	0	22	0	11,549	1,549	0	17,233
Sunfish (all species)											
Angler-Hours	0	94	0	0	68	0	0	1,748	519	0	2,429
Estimated Kept	0	0	0	0	0	0	0	1,415	83	0	1,498
Estimated Released	0	0	0	0	0	0	0	21	0	0	21
Black Bass (all species)											
Angler-Hours	2,686	436	23	0	432	849	0	41,421	14,078	1,313	61,238
Estimated Kept	378	26	10	0	27	33	0	1,143	759	0	2,376
Estimated Released	751	48	10	0	35	201	0	24,972	6,176	258	32,451
Anything											
Angler-Hours	48,686	25,840	3,405	1,453	38,533	17,618	1,342	20,524	7,034	3,480	167,915
Estimated Kept	5,230	1,729	56	0	1,129	540	0	3,686	750	78	13,198
Estimated Released	5,047	4,618	462	739	3,489	867	118	4,518	949	0	20,807

REFERENCES

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APPENDIX A

Description of the River Sections Surveyed

Description of river sections surveyed

River Miles	Section Number	Description	Distance (Miles)
Sacramento River/Delta			
-22 to 12	1.0	Carquinez Bridge to Rio Vista Bridge	35
13 to 59	2.0	Rio Vista Bridge to mouth of American River	48
60 to 89	3.0	American River to Knights Landing (Hwy. 113 Bridge)	29
90 to 143	4.0	Knights Landing to Colusa (River Rd Bridge)	54
144 to 199	5.0	Colusa to Hamilton City (Hwy. 32 Bridge)	56
200 to 242	6.0	Hamilton City to Red Bluff Diversion Dam	43
243 to 280	7.0	Red Bluff Diversion Dam to Deschutes Road Bridge	38
281 to 298	8.0	Deschutes Road Bridge to ACID Dam at Redding	18
American River			
500 to 504	9.0	Discovery Park to Interstate 80 Bridge	4
505 to 522	10.0	Interstate 80 Bridge to Hazel Avenue Bridge	18
523	10.1	Hazel Avenue Bridge to Nimbus Dam	1
Feather River			
400 to 438	11.0	Verona to Sunset Pumps	39
439 to 458 460 to 467	12.0	Sunset Pumps to Feather River Fish Hatchery (excluding Thermalito River outlet)	28
459	12.1	Thermalito River Outlet (only)	1
Yuba River			
600 to 612	13.0	Marysville to Daguerre Point Dam	13
613 to 622	14.0	Daguerre Point to 1 mile upstream Hwy 20 Bridge	8
San Joaquin River/Delta			
700 to 757	15.0	Mossdale Crossing to the confluence with the Sacramento River	58
Mokelumne River			
800 to 822	16.0	South Fork - from mouth to Interstate 5 Bridge Crossing	23
900 to 910	17.0	North Fork - from mouth to confluence with South Fork at New Hope Landing	11
Stanislaus River			
1029 to 1058	18.0	Stanislaus River from McHenry Avenue to Goodwin Dam	29

APPENDIX B

Estimated Angler-Hours and Number of Days Sampled

CENTRAL VALLEY HARVEST MONITORING PROJECT

1999 Angler Survey Estimate Summary

TOTAL NUMBER OF ANGLER-HOURS

River	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	47,253	6,640	7,441	14,974	19,536	3,648	893	14,494	7,183	1,366	123,528
February	45,360	6,373	2,848	753	9,766	3,494	336	16,381	3,149	No Survey	88,460
March	81,781	31,394	7,353	2,108	14,256	50,839	1,744	32,460	7,797	No Survey	229,732
April	125,432	78,468	52,547	9,806	10,776	39,557	4,802	24,320	17,320	Closed	363,028
May	97,800	143,984	70,492	7,522	20,704	23,852	4,260	38,347	15,264	Closed	422,225
June	72,315	45,909	26,745	4,210	51,836	28,423	8,671	22,360	8,407	3,446	272,322
July	37,822	51,255	49,510	27,838	60,725	101,809	6,505	28,633	7,368	4,101	375,566
August	58,789	71,687	79,972	34,066	56,063	139,460	4,579	28,241	5,168	3,575	481,600
September	78,398	47,845	77,943	84,647	61,523	97,172	3,029	24,872	7,698	3,044	488,171
October	195,545	37,792	26,535	86,424	122,994	71,456	9,758	36,037	20,102	Closed	608,643
November	56,665	10,895	7,418	26,659	48,010	9,589	3,797	34,330	14,836	Closed	212,199
December	52,697	11,149	20,704	26,027	15,641	5,224	5,830	36,168	12,164	Closed	185,604
TOTAL	949,857	543,391	429,508	325,034	491,830	574,523	54,304	336,643	126,456	15,532	3,847,078

TOTAL NUMBER OF SAMPLE-DAYS

River	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	15	9	11	16	19	20	15	6	16	8	135
February	13	11	13	16	18	24	13	8	16	No Survey	132
March	14	16	16	16	24	24	16	8	16	No Survey	150
April	9	16	15	16	22	24	14	5	16	Closed	137
May	11	16	16	16	24	22	13	8	16	Closed	142
June	13	16	13	14	24	24	16	5	16	8	149
July	13	16	16	16	24	23	16	8	14	8	154
August	11	16	15	16	24	24	16	8	16	8	154
September	13	15	16	15	23	24	16	7	16	8	153
October	14	16	15	16	24	24	14	7	16	Closed	146
November	11	16	16	16	24	24	14	6	16	Closed	143
December	14	14	14	13	21	20	12	5	16	Closed	129
TOTAL	151	177	176	186	271	277	175	81	190	40	1,724

Notes Feb - No surveys of Sec 18
 Mar - No surveys of Sec 18

APPENDIX C

Estimated Harvest, Released and Angler-Hours by Target Species

CENTRAL VALLEY HARVEST MONITORING PROJECT

CHINOOK SALMON - 1999

TOTAL ESTIMATED HARVEST

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	0	0	387	384	114	0	0	0	0	0	885
February	0	0	0	0	0	0	0	0	0	No Survey	0
March	0	0	0	0	0	0	0	0	0	No Survey	0
April	0	0	0	0	0	53	0	0	0	Closed	53
May	0	0	0	0	0	376	0	0	0	Closed	376
June	0	0	0	0	598	667	0	0	0	0	1,265
July	196	1,135	1,952	228	1,123	4,681	267	0	0	0	9,582
August	751	1,747	4,814	1,061	897	9,676	507	0	0	0	19,453
September	1,694	1,230	6,149	4,594	2,209	6,977	0	0	0	0	22,853
October	7,998	875	1,005	5,382	8,993	3,170	0	0	401	Closed	27,824
November	63	53	377	876	6,250	84	0	0	0	Closed	7,703
December	13	66	931	1,277	869	0	0	0	0	Closed	3,156
TOTAL:	10,715	5,106	15,615	13,802	21,053	25,684	774	0	401	0	93,150

TOTAL ESTIMATED RELEASED

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	0	0	0	0	114	21	0	0	0	0	135
February	0	0	0	0	0	0	0	0	0	No Survey	0
March	0	0	0	0	0	0	0	0	0	No Survey	0
April	0	0	0	0	0	0	0	0	0	Closed	0
May	0	0	0	0	0	23	0	0	0	Closed	23
June	0	0	0	0	109	245	0	0	0	0	354
July	0	0	32	0	329	485	167	0	0	0	1,013
August	0	0	88	0	1,079	4,510	254	0	0	0	5,931
September	34	27	316	42	2,631	1,651	0	0	67	44	4,812
October	134	0	126	191	8,969	9,060	96	0	25	Closed	18,601
November	0	0	69	0	14,447	56	0	0	14	Closed	14,586
December	0	0	12	17	1,859	0	0	0	0	Closed	1,888
TOTAL:	168	27	643	250	29,537	16,051	517	0	106	44	47,343

ESTIMATED ANGLER-HOURS

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	0	0	6,768	7,992	227	64	0	0	0	0	15,051
February	0	0	0	0	0	0	0	0	0	No Survey	0
March	0	0	0	0	0	0	0	0	0	No Survey	0
April	0	0	0	0	0	853	0	0	0	Closed	853
May	0	0	0	0	50	7,250	0	0	0	Closed	7,300
June	0	35	0	0	9,953	15,503	100	0	0	0	25,591
July	7,947	40,366	44,978	10,702	35,575	96,498	2,648	0	0	0	238,714
August	20,065	63,342	78,904	21,526	37,515	132,039	3,006	0	30	0	356,427
September	46,423	43,272	76,751	57,044	51,133	92,410	306	0	948	44	368,331
October	125,972	32,489	25,635	50,094	114,990	40,053	1,371	0	9,039	Closed	399,643
November	1,958	5,566	6,993	11,013	39,993	1,817	0	0	1,478	Closed	68,828
December	87	2,112	19,939	18,337	5,765	0	0	0	0	Closed	46,240
TOTAL	202,462	187,182	259,968	176,708	295,201	386,487	7,431	0	11,495	44	1,526,978

CENTRAL VALLEY HARVEST MONITORING PROJECT

STEELHEAD - 1999

TOTAL ESTIMATED HARVEST

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	0	0	0	0	99	21	0	0	0	0	120
February	0	0	0	0	84	0	0	0	0	No Survey	84
March	0	0	0	0	113	0	0	0	0	No Survey	113
April	0	0	0	0	0	0	0	0	0	Closed	0
May	0	0	0	0	0	23	0	0	0	Closed	23
June	0	0	0	0	0	0	0	0	0	0	0
July	0	0	0	0	34	0	0	0	0	0	34
August	0	0	0	0	39	0	0	0	0	0	39
September	0	0	0	0	24	0	0	0	0	0	24
October	0	0	0	25	43	19	0	0	0	Closed	87
November	16	35	0	0	106	85	35	0	0	Closed	277
December	0	27	0	0	25	33	0	0	0	Closed	85
TOTAL	16	62	0	25	567	181	35	0	0	0	886

TOTAL ESTIMATED RELEASED

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.:	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	0	0	0	0	1,167	83	0	0	0	56	1,306
February	0	0	0	0	546	116	0	0	0	No Survey	662
March	0	0	0	0	964	0	0	0	0	No Survey	964
April	0	0	0	0	711	53	0	0	0	Closed	764
May	0	0	0	0	50	21	0	0	0	Closed	71
June	0	0	0	0	0	0	0	0	0	0	0
July	0	0	0	0	0	0	0	0	0	0	0
August	0	0	0	0	544	80	0	0	0	0	624
September	0	0	0	0	343	26	0	0	0	0	369
October	0	0	56	25	492	1,411	119	0	0	Closed	2,103
November	0	12	67	109	759	859	287	0	0	Closed	2,093
December	0	0	0	34	1,128	327	122	0	0	Closed	1,611
TOTAL	0	12	123	168	6,704	2,976	528	0	0	56	10,567

ESTIMATED ANGLER-HOURS

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	0	0	7	0	17,267	772	521	0	0	141	18,708
February	0	0	0	0	8,665	738	0	0	0	No Survey	9,403
March	0	0	0	0	9,506	1,394	91	0	0	No Survey	10,991
April	0	0	0	0	2,478	817	0	0	0	Closed	3,295
May	0	0	7	0	377	259	0	0	0	Closed	643
June	0	0	0	0	210	34	0	0	0	0	244
July	0	0	0	0	319	0	0	0	0	0	319
August	0	0	0	12	350	1,114	0	0	0	0	1,476
September	0	0	0	0	1,720	76	0	0	0	0	1,796
October	0	0	260	344	2,595	29,338	2,360	0	0	Closed	34,897
November	55	174	128	590	5,896	7,196	534	0	0	Closed	14,573
December	90	375	510	102	7,991	3,068	451	0	0	Closed	12,587
TOTAL	145	549	912	1,048	57,374	44,806	3,957	0	0	141	108,932

CENTRAL VALLEY HARVEST MONITORING PROJECT

RAINBOW TROUT - 1999

TOTAL ESTIMATED HARVEST

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.:	1,2	3,4	5,6	7,8	9-10.1	11-12.1	13,14	15	16,17	18	TOTAL
January	0	0	0	73	0	21	105	0	0	0	199
February	0	0	24	0	0	0	0	0	0	No Survey	24
March	0	0	9	0	0	0	7	0	0	No Survey	16
April	0	0	0	0	0	0	404	0	0	Closed	404
May	0	0	27	0	50	0	0	0	0	Closed	77
June	0	0	0	58	70	0	0	0	0	0	128
July	0	0	36	380	136	0	0	0	0	0	552
August	0	0	0	64	39	0	156	0	0	0	259
September	0	0	29	387	24	0	0	0	0	0	440
October	0	0	31	34	0	0	385	0	0	Closed	450
November	0	0	0	37	0	0	0	0	0	Closed	37
December	0	0	0	0	49	0	0	0	0	Closed	49
TOTAL	0	0	156	1,033	368	21	1,057	0	0	0	2,635

TOTAL ESTIMATED RELEASED

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.:	1,2	3,4	5,6	7,8	9-10.1	11-12.1	13,14	15	16,17	18	TOTAL
January	0	0	0	1,903	80	21	166	0	0	901	3,071
February	0	0	16	383	0	0	0	0	0	No Survey	399
March	0	0	0	1,254	23	496	758	0	0	No Survey	2,531
April	0	0	42	5,600	47	158	2,002	0	0	Closed	7,849
May	0	0	27	4,096	50	82	1,239	0	0	Closed	5,494
June	0	0	0	1,917	385	51	571	0	0	143	3,067
July	0	0	0	10,739	96	0	1,699	0	0	689	13,223
August	0	0	0	10,617	466	64	133	0	0	1,586	12,866
September	0	0	14	19,508	685	0	1,189	0	0	753	22,149
October	0	0	0	20,260	43	0	2,272	0	0	Closed	22,575
November	0	0	0	7,762	56	0	1,165	0	0	Closed	8,983
December	0	0	0	1,884	582	0	1,669	0	0	Closed	4,135
TOTAL	0	0	99	85,923	2,513	872	12,863	0	0	4,072	106,342

ESTIMATED ANGLER-HOURS

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.:	1,2	3,4	5,6	7,8	9-10.1	11-12.1	13,14	15	16,17	18	TOTAL
January	0	0	34	6,777	10	475	472	0	0	1,028	8,796
February	0	0	155	728	0	347	334	0	0	No Survey	1,564
March	0	0	18	1,864	874	846	1,625	0	0	No Survey	5,227
April	0	0	14	9,465	554	1,254	4,541	0	0	Closed	15,828
May	0	0	115	7,274	1,445	246	3,669	0	0	Closed	12,749
June	0	0	72	4,210	1,933	98	2,780	0	0	410	9,503
July	0	0	243	17,079	794	209	2,858	0	0	1,034	22,217
August	0	0	0	12,450	1,458	334	1,442	0	0	1,049	16,733
September	0	0	184	22,719	1,620	16	2,160	0	0	332	27,031
October	0	0	31	35,732	444	0	5,881	0	0	Closed	42,088
November	0	0	71	15,056	213	43	3,061	0	0	Closed	18,444
December	0	0	0	7,588	260	0	5,276	0	0	Closed	13,124
TOTAL	0	0	937	140,942	9,605	3,868	34,099	0	0	3,853	193,304

CENTRAL VALLEY HARVEST MONITORING PROJECT

STRIPED BASS - 1999

TOTAL ESTIMATED HARVEST

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.:	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	715	0	0	0	0	0	0	236	332	0	1,283
February	214	0	0	0	0	31	0	132	45	No Survey	422
March	607	171	0	0	39	908	0	804	385	No Survey	2,914
April	5,442	4,131	6,281	0	229	1,159	0	1,027	671	Closed	18,940
May	3,565	10,336	4,484	0	291	130	0	2,217	490	Closed	21,513
June	2,051	2,103	196	0	496	253	0	271	308	0	5,678
July	705	176	103	0	300	24	0	193	64	0	1,565
August	372	79	67	0	335	32	0	229	81	0	1,195
September	576	64	13	0	119	34	0	187	377	44	1,414
October	2,129	19	23	0	0	19	0	1,646	460	Closed	4,296
November	4,474	12	0	0	0	0	0	1,630	974	Closed	7,090
December	2,836	13	0	0	0	0	0	1,913	758	Closed	5,520
TOTAL	23,686	17,104	11,167	0	1,809	2,590	0	10,485	4,945	44	71,830

TOTAL ESTIMATED RELEASED

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.:	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	2,125	0	0	0	0	23	0	1,062	314	0	3,524
February	428	0	0	0	0	31	0	331	78	No Survey	868
March	804	135	0	0	0	1,374	0	1,881	658	No Survey	4,852
April	10,127	8,673	12,463	0	481	3,157	0	3,009	1,665	Closed	39,575
May	18,729	36,261	11,485	0	267	1,233	0	6,728	1,471	Closed	76,174
June	16,995	20,107	2,075	0	4,016	3,669	0	1,939	986	0	49,787
July	8,906	3,915	443	0	1,912	2,443	0	8,596	2,359	276	28,850
August	9,520	1,536	183	0	1,926	2,168	0	3,926	386	102	19,747
September	7,560	938	219	0	214	442	0	6,048	1,037	44	16,502
October	9,955	389	79	0	194	169	0	6,583	831	Closed	18,200
November	11,708	58	0	0	0	0	0	4,922	1,387	Closed	18,075
December	6,513	27	0	0	0	261	0	6,262	1,297	Closed	14,360
TOTAL	103,370	72,039	26,947	0	9,010	14,970	0	51,287	12,469	422	290,514

ESTIMATED ANGLER-HOURS

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.:	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	20,991	329	0	0	627	922	0	7,129	5,481	56	35,535
February	5,785	76	0	0	108	1,195	0	4,717	1,534	No Survey	13,415
March	24,318	4,983	522	0	1,608	41,744	0	13,513	5,836	No Survey	92,524
April	95,121	62,489	44,757	0	6,152	33,348	177	14,849	12,983	Closed	269,876
May	76,165	134,743	61,267	0	9,932	12,161	0	20,807	11,742	Closed	326,817
June	48,302	36,470	6,947	0	7,479	7,335	0	6,585	4,697	641	118,456
July	20,529	7,401	2,801	0	9,997	3,622	0	11,796	2,695	862	59,703
August	23,620	3,567	576	0	7,496	2,329	0	4,955	1,157	1,567	45,267
September	17,314	1,020	966	0	3,515	760	102	8,647	3,543	1,860	37,727
October	51,865	1,397	512	0	1,085	1,147	145	20,182	6,702	Closed	83,035
November	44,735	888	0	0	457	203	0	26,149	11,504	Closed	83,936
December	45,994	1,792	0	0	642	1,160	0	29,814	11,297	Closed	90,699
TOTAL	474,739	255,155	118,348	0	49,098	105,926	424	169,143	79,171	4,986	1,256,990

CENTRAL VALLEY HARVEST MONITORING PROJECT

STURGEON - 1999

TOTAL ESTIMATED HARVEST

River	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	139	0	13	0	0	0	0	59	0	0	211
February	242	37	26	0	0	0	0	50	0	No Survey	355
March	344	84	18	0	0	0	0	39	0	No Survey	485
April	314	16	0	0	0	0	0	0	0	Closed	330
May	86	0	0	0	0	0	0	39	0	Closed	125
June	106	0	0	0	0	0	0	45	0	0	151
July	92	0	0	0	0	0	0	0	0	0	92
August	146	0	0	0	0	0	0	0	0	0	146
September	0	0	0	0	0	0	0	0	0	0	0
October	37	0	0	0	0	0	0	0	0	Closed	37
November	45	0	0	0	0	0	0	0	0	Closed	45
December	0	15	0	0	0	0	0	0	0	Closed	15
TOTAL	1,551	152	57	0	0	0	0	232	0	0	1,992

TOTAL ESTIMATED RELEASED

River	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	526	0	0	0	0	0	0	88	0	0	614
February	1,032	5	0	0	0	0	0	66	0	No Survey	1,103
March	1,098	0	9	0	0	0	0	118	0	No Survey	1,225
April	538	16	181	0	0	0	0	54	0	Closed	789
May	172	0	0	0	0	0	0	39	0	Closed	211
June	493	0	0	0	0	0	0	0	0	0	493
July	642	0	0	0	0	0	0	154	0	0	796
August	146	0	0	0	0	0	0	0	0	0	146
September	0	0	0	0	0	0	0	0	0	0	0
October	149	0	0	0	0	0	0	0	0	Closed	149
November	331	0	0	0	0	0	0	65	0	Closed	396
December	179	7	17	0	0	0	0	31	0	Closed	234
TOTAL	5,306	28	207	0	0	0	0	615	0	0	6,156

ESTIMATED ANGLER-HOURS

River	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	23,856	6,852	589	0	0	0	0	3,649	0	0	34,946
February	32,604	5,632	2,583	0	0	343	0	6,231	14	No Survey	47,407
March	53,713	23,019	5,882	0	0	1,668	0	8,398	0	No Survey	92,680
April	27,092	13,077	7,381	0	0	38	0	1,702	0	Closed	49,290
May	6,576	950	366	0	0	0	0	1,147	0	Closed	9,039
June	6,902	17	0	0	0	0	0	406	0	0	7,325
July	6,069	0	232	0	0	0	0	2,024	0	0	8,325
August	4,826	0	0	0	0	0	0	381	0	0	5,207
September	4,400	0	0	0	0	0	0	0	0	0	4,400
October	5,022	10	0	0	235	0	0	529	0	Closed	5,796
November	5,686	408	102	0	0	0	0	1,434	0	Closed	7,630
December	5,525	3,549	120	0	0	327	0	1,218	0	Closed	10,739
TOTAL	182,271	53,514	17,255	0	235	2,376	0	27,119	14	0	282,784

CENTRAL VALLEY HARVEST MONITORING PROJECT

AMERICAN SHAD - 1999

TOTAL ESTIMATED HARVEST

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.:	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	0	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	No Survey	0
March	0	0	0	0	0	0	0	0	0	No Survey	0
April	1,060	0	0	0	0	0	0	0	0	Closed	1,060
May	9,105	262	127	0	38	1,104	0	0	0	Closed	10,636
June	7,846	139	858	0	3,755	1,302	0	0	0	36	13,936
July	0	0	131	0	1,294	20	200	0	0	35	1,680
August	0	0	0	0	0	0	0	0	0	0	0
September	0	0	0	0	0	0	0	0	0	0	0
October	0	0	0	0	0	0	0	0	0	Closed	0
November	0	0	0	0	0	0	0	0	0	Closed	0
December	0	0	0	0	0	0	0	0	0	Closed	0
TOTAL	18,011	401	1,116	0	5,087	2,426	200	0	0	71	27,312

TOTAL ESTIMATED RELEASED

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.:	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	0	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	No Survey	0
March	0	0	0	0	0	0	0	0	0	No Survey	0
April	0	0	0	0	0	0	0	0	0	Closed	0
May	56	2,947	4,763	0	352	930	0	0	0	Closed	9,048
June	1,353	1,556	10,619	0	14,464	3,244	3,775	0	0	321	35,332
July	0	0	455	0	5,039	0	468	0	0	0	5,962
August	0	0	0	0	0	149	0	0	0	0	149
September	0	0	0	0	0	0	0	0	0	0	0
October	0	0	0	0	0	0	0	0	0	Closed	0
November	0	0	0	0	0	0	0	0	0	Closed	0
December	0	0	0	0	0	0	0	0	0	Closed	0
TOTAL	1,409	4,503	15,837	0	19,855	4,323	4,243	0	0	321	50,491

ESTIMATED ANGLER-HOURS

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.:	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	0	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	No Survey	0
March	0	0	0	0	0	0	0	0	0	No Survey	0
April	848	0	0	0	0	0	0	0	0	Closed	848
May	9,938	3,107	7,499	0	3,533	2,644	437	0	0	Closed	27,158
June	9,188	2,358	19,374	0	27,335	4,310	5,594	0	0	1,060	69,219
July	0	15	812	0	7,823	255	948	0	0	207	10,060
August	0	0	0	0	0	149	0	0	0	0	149
September	0	0	0	0	0	0	0	0	0	0	0
October	0	0	0	0	0	0	0	0	0	Closed	0
November	0	0	0	0	0	0	0	0	0	Closed	0
December	0	0	0	0	0	0	0	0	0	Closed	0
TOTAL	19,974	5,480	27,665	0	38,691	7,358	6,979	0	0	1,267	107,434

CENTRAL VALLEY HARVEST MONITORING PROJECT

CATFISH (all species) - 1999

TOTAL ESTIMATED HARVEST

River	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	40	0	0	0	0	235	0	1,475	175	0	1,925
February	111	16	0	0	0	16	0	1,538	228	No Survey	1,909
March	116	217	0	0	0	123	0	2,293	288	No Survey	2,937
April	106	257	0	0	0	20	0	1,495	791	Closed	2,689
May	666	340	0	0	0	0	0	6,456	277	Closed	7,739
June	316	139	0	0	0	0	0	4,555	565	0	5,575
July	92	381	0	0	0	24	0	5,358	1,104	0	6,959
August	1,302	270	0	0	0	22	0	6,288	1,019	0	8,901
September	439	245	0	0	0	17	0	3,131	422	0	4,254
October	0	407	0	0	0	38	0	4,555	247	Closed	5,247
November	47	125	0	0	0	0	0	3,520	409	Closed	4,101
December	0	0	0	0	0	0	0	216	697	Closed	913
TOTAL	3,135	2,397	0	0	0	495	0	40,880	6,222	0	53,129

TOTAL ESTIMATED RELEASED

River	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	0	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	132	0	No Survey	132
March	0	0	0	0	0	0	0	706	0	No Survey	706
April	0	16	0	0	0	0	0	468	61	Closed	545
May	0	186	0	0	0	0	0	1,595	0	Closed	1,781
June	45	209	32	0	0	0	0	271	0	0	557
July	458	578	0	0	0	0	0	1,850	853	0	3,739
August	651	289	0	0	0	22	0	2,630	596	0	4,188
September	169	458	0	0	0	0	0	1,928	0	0	2,555
October	0	381	0	0	0	0	0	999	25	Closed	1,405
November	0	346	0	0	0	0	0	847	14	Closed	1,207
December	0	295	0	0	0	0	0	123	0	Closed	418
TOTAL	1,323	2,758	32	0	0	22	0	11,549	1,549	0	17,233

ESTIMATED ANGLER-HOURS

River	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	10	53	0	0	0	294	0	1,799	677	0	2,833
February	174	22	79	0	0	8	0	3,494	590	No Survey	4,367
March	156	1,003	172	0	50	315	0	5,341	1,427	No Survey	8,464
April	344	1,129	0	0	0	230	0	3,571	2,690	Closed	7,964
May	2,304	2,525	151	0	101	22	0	9,149	1,870	Closed	16,122
June	2,480	2,058	64	0	0	148	50	10,317	930	142	16,189
July	1,872	2,000	0	0	34	284	0	10,418	1,371	0	15,979
August	4,569	2,549	192	0	799	393	0	13,633	1,832	26	23,993
September	2,221	1,752	0	0	459	297	0	6,853	1,280	0	12,842
October	67	2,078	0	0	109	381	0	8,464	423	Closed	11,522
November	392	1,617	10	0	0	42	0	2,477	807	Closed	5,345
December	30	353	0	0	0	0	0	1,141	260	Closed	1,784
TOTAL	14,599	17,139	668	0	1,552	2,414	50	76,657	14,157	168	127,404

CENTRAL VALLEY HARVEST MONITORING PROJECT

SUNFISH (all species) - 1999

TOTAL ESTIMATED HARVEST

River	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.	1,2	3,4	5,6	7,8	9-10.1	11-12.1	13,14	15	16,17	18	TOTAL
January	0	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	No Survey	0
March	0	0	0	0	0	0	0	0	0	No Survey	0
April	0	0	0	0	0	0	0	0	0	Closed	0
May	0	0	0	0	0	0	0	0	0	Closed	0
June	0	0	0	0	0	0	0	316	0	0	316
July	0	0	0	0	0	0	0	0	83	0	83
August	0	0	0	0	0	0	0	570	0	0	570
September	0	0	0	0	0	0	0	353	0	0	353
October	0	0	0	0	0	0	0	176	0	Closed	176
November	0	0	0	0	0	0	0	0	0	Closed	0
December	0	0	0	0	0	0	0	0	0	Closed	0
TOTAL	0	0	0	0	0	0	0	1,415	83	0	1,498

TOTAL ESTIMATED RELEASED

River	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.	1,2	3,4	5,6	7,8	9-10.1	11-12.1	13,14	15	16,17	18	TOTAL
January	0	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	No Survey	0
March	0	0	0	0	0	0	0	0	0	No Survey	0
April	0	0	0	0	0	0	0	0	0	Closed	0
May	0	0	0	0	0	0	0	0	0	Closed	0
June	0	0	0	0	0	0	0	0	0	0	0
July	0	0	0	0	0	0	0	0	0	0	0
August	0	0	0	0	0	0	0	0	0	0	0
September	0	0	0	0	0	0	0	21	0	0	21
October	0	0	0	0	0	0	0	0	0	Closed	0
November	0	0	0	0	0	0	0	0	0	Closed	0
December	0	0	0	0	0	0	0	0	0	Closed	0
TOTAL	0	0	0	0	0	0	0	21	0	0	21

ESTIMATED ANGLER-HOURS

River	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.	1,2	3,4	5,6	7,8	9-10.1	11-12.1	13,14	15	16,17	18	TOTAL
January	0	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	No Survey	0
March	0	0	0	0	0	0	0	0	0	No Survey	0
April	0	0	0	0	0	0	0	0	0	Closed	0
May	0	0	0	0	0	0	0	0	0	Closed	0
June	0	0	0	0	0	0	0	947	0	0	947
July	0	0	0	0	68	0	0	0	495	0	563
August	0	0	0	0	0	0	0	114	0	0	114
September	0	0	0	0	0	0	0	410	0	0	410
October	0	94	0	0	0	0	0	147	0	Closed	241
November	0	0	0	0	0	0	0	130	24	Closed	154
December	0	0	0	0	0	0	0	0	0	Closed	0
TOTAL	0	94	0	0	68	0	0	1,748	519	0	2,429

CENTRAL VALLEY HARVEST MONITORING PROJECT

BLACK BASS (all species) - 1999

TOTAL ESTIMATED HARVEST

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	0	0	0	0	0	0	0	30	0	0	30
February	0	0	0	0	0	0	0	0	0	No Survey	0
March	0	0	0	0	0	0	0	274	0	No Survey	274
April	0	0	0	0	0	0	0	36	113	Closed	149
May	0	0	0	0	0	0	0	156	67	Closed	223
June	0	16	0	0	0	0	0	225	79	0	320
July	0	0	0	0	27	0	0	0	416	0	443
August	279	0	0	0	0	0	0	267	20	0	566
September	68	0	0	0	0	0	0	62	10	0	140
October	0	10	0	0	0	19	0	0	13	Closed	42
November	31	0	10	0	0	14	0	0	41	Closed	96
December	0	0	0	0	0	0	0	93	0	Closed	93
TOTAL	378	26	10	0	27	33	0	1,143	759	0	2,376

TOTAL ESTIMATED RELEASED

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	20	0	0	0	0	0	0	118	13	0	151
February	0	0	0	0	0	0	0	166	11	No Survey	177
March	0	0	0	0	0	72	0	1,490	47	No Survey	1,609
April	0	0	0	0	0	0	0	1,117	188	Closed	1,305
May	0	0	0	0	0	22	0	3,694	365	Closed	4,081
June	0	0	0	0	35	0	0	1,172	960	0	2,167
July	0	0	0	0	0	0	0	3,392	1,883	207	5,482
August	47	0	0	0	0	90	0	5,907	993	51	7,088
September	606	0	0	0	0	17	0	3,152	516	0	4,291
October	0	48	0	0	0	0	0	3,321	825	Closed	4,194
November	78	0	10	0	0	0	0	456	354	Closed	898
December	0	0	0	0	0	0	0	987	21	Closed	1,008
TOTAL	751	48	10	0	35	201	0	24,972	6,176	258	32,451

ESTIMATED ANGLER-HOURS

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.	1,2	3,4	5,6	7,8	9-10,1	11-12,1	13,14	15	16,17	18	TOTAL
January	121	0	0	0	0	0	0	767	139	56	1,083
February	0	0	0	0	0	62	0	418	196	No Survey	676
March	0	0	0	0	0	18	0	3,680	175	No Survey	3,873
April	0	0	4	0	0	172	0	2,004	985	Closed	3,165
May	0	270	0	0	0	43	0	6,368	1,286	Closed	7,967
June	0	4	0	0	350	100	0	1,443	2,521	53	4,471
July	294	0	0	0	82	0	0	3,797	2,736	758	7,667
August	1,163	24	0	0	0	281	0	7,222	1,999	269	10,958
September	690	7	0	0	0	42	0	6,112	1,367	177	8,395
October	0	95	0	0	0	47	0	4,768	1,690	Closed	6,600
November	149	36	19	0	0	84	0	1,711	838	Closed	2,837
December	259	0	0	0	0	0	0	3,131	146	Closed	3,546
TOTAL	2,636	436	23	0	432	849	0	41,421	14,078	1,313	61,238

CENTRAL VALLEY HARVEST MONITORING PROJECT

ANYTHING (anglers fishing for any species) - 1999

TOTAL ESTIMATED HARVEST

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.	1,2	3,4	5,6	7,8	9-10.1	11-12.1	13,14	15	16,17	18	TOTAL
January	0	79	0	0	0	70	0	88	87	0	324
February	2,564	42	0	0	0	77	0	364	11	No Survey	3,058
March	66	117	0	0	0	147	0	78	0	No Survey	408
April	159	47	0	0	47	20	0	775	19	Closed	1,067
May	611	333	42	0	0	21	0	233	48	Closed	1,288
June	406	510	0	0	210	0	0	451	19	0	1,596
July	0	326	0	0	184	48	0	77	96	34	765
August	585	79	0	0	117	157	0	572	0	0	1,510
September	102	24	0	0	48	0	0	415	100	44	733
October	361	69	0	0	523	0	0	147	370	Closed	1,470
November	376	23	14	0	0	0	0	424	0	Closed	837
December	0	80	0	0	0	0	0	62	0	Closed	142
TOTAL	5,230	1,729	56	0	1,129	540	0	3,686	750	78	13,198

TOTAL ESTIMATED RELEASED

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No	1,2	3,4	5,6	7,8	9-10.1	11-12.1	13,14	15	16,17	18	TOTAL
January	0	0	0	0	20	70	0	177	49	0	316
February	0	0	0	0	28	31	0	83	123	No Survey	265
March	0	33	0	0	0	0	0	39	37	No Survey	109
April	265	79	109	342	0	260	0	378	53	Closed	1,486
May	389	522	162	372	452	21	0	117	16	Closed	2,051
June	1,063	751	0	0	420	63	0	406	22	0	2,725
July	65	612	108	0	61	234	0	270	0	0	1,350
August	1,528	971	52	25	1,347	22	0	267	0	0	4,212
September	1,220	570	0	0	774	0	118	871	200	0	3,753
October	253	620	31	0	368	151	0	1,029	428	Closed	2,880
November	251	65	0	0	19	15	0	326	0	Closed	676
December	13	395	0	0	0	0	0	555	21	Closed	984
TOTAL	5,047	4,618	462	739	3,489	867	118	4,518	949	0	20,807

ESTIMATED ANGLER-HOURS

River:	Sacramento				American	Feather	Yuba	San Joaquin	Mokelumne	Stanislaus	
Section No.:	1,2	3,4	5,6	7,8	9-10.1	11-12.1	13,14	15	16,17	18	TOTAL
January	1,545	406	42	205	1,406	1,122	0	1,150	888	84	6,848
February	6,796	643	31	25	993	802	4	1,522	815	No Survey	11,631
March	3,594	2,388	758	245	2,219	4,855	28	1,529	360	No Survey	15,976
April	2,027	1,773	391	342	1,263	2,846	83	2,193	662	Closed	11,580
May	2,637	2,390	1,088	248	4,670	1,222	155	875	367	Closed	13,652
June	5,442	4,967	288	0	4,456	896	125	2,661	259	1,140	20,234
July	1,085	2,473	436	57	6,033	941	50	598	72	1,241	12,986
August	4,547	2,206	0	77	8,446	2,970	131	1,906	150	384	20,817
September	4,010	1,793	43	0	3,075	600	461	2,851	560	631	14,024
October	12,619	1,629	97	254	3,537	491	0	1,947	2,252	Closed	22,826
November	3,681	2,203	97	0	1,452	203	203	2,428	186	Closed	10,453
December	703	2,969	134	0	983	670	102	864	463	Closed	6,888
TOTAL	48,686	25,840	3,405	1,453	38,533	17,618	1,342	20,524	7,034	3,480	167,915